OPC PROJECT SUMMARIES
2006-2007

GOVERANCE

California Ocean Science Trust (CalOST) Science Advisor Position

CalOST will coordinate and disseminate scientific information regarding the state's coastal and marine resources between the OPC, agencies and other entities; develop advisory teams to investigate specific questions for the OPC; and work with the state's science community to develop yearly research priorities that can be adopted by the OPC.

Non-market Ecological Valuation of Coastal Marine Resources

The National Center for Ecological Analysis and Synthesis (NCEAS) project will evaluate and synthesize methods for deriving the value of ecosystem services that are provided by coastal marine resources in California. The panel created by NCEAS will:

- compile a lexicon related to valuation of ecosystem services
- create a preliminary list of services in coastal marine California that are expedient and tractable to value
- evaluate and synthesize methods for deriving the value of ecosystem services
- consider the extent to which surrogate measures of market or non-market values can be developed and implemented
- assess the uncertainty in direct or indirect measurements of ecosystem services and discuss how those uncertainties might affect management options or decisions
- calculate the value of at least one of the services provided and define the potential uncertainties associated with that value

To accomplish these tasks, NCEAS will convene approximately three workshops and working groups of economists and ecologists with appropriate expertise.

Ocean Energy Impacts Study

The study will examine the potential environmental impacts associated with wave energy technologies in California and articulate a set of research questions that need to be answered to fill critical knowledge gaps for siting wave energy projects off the coast of California.

RESEARCH AND MONITORING

Coastal Ocean Currents Monitoring Program

California recently committed $21 million towards the creation of a statewide ocean observing system, the Coastal Ocean Currents Monitoring Program (COCMP). The COCMP will consist of instrumentation to monitor surface and subsurface currents, sea surface temperature, salinity, and chlorophyll, and will integrate information from data acquisition equipment deployed in the ocean, onshore, and from satellites. Information generated by this system will help state, regional, and local agencies determine areas of contamination and pollutant transport in coastal waters, mitigate hazards, and manage California’s living marine resources. Successful COCMP implementation will require significant planning, internal and external review, and coordination

with two nascent Regional Associations, numerous agencies, and end-users. The COCMP is also nested in a larger national ocean observing system that creates additional external relations and coordination. COCMP infrastructure deployment also requires an unprecedented amount of state-wide permitting in coordination with state and federal agencies. Staff has contracted for a broad range of project management services to help successfully implement the COCMP.

MPA Monitoring Enterprise

The three-year project will launch a monitoring program for the statewide marine protected areas (MPAs) to be designated under the Marine Life Protection Act. The purpose of this entity is to ensure that MPA monitoring science is properly collected, managed, analyzed and disseminated. It is also essential for scientific findings to be communicated to the public and to policymakers. Ultimately, the Enterprise will work with stakeholders to:

- Design and implement monitoring programs and coordinate with existing data collection activities to gather ecological and socioeconomic data relevant to the condition and effects of the state's MPA network;
- Develop and test monitoring methods, protocols, and quality assurance/quality control procedures, and, where appropriate, adapt existing science programs and their protocols for the purposes of monitoring the state's MPAs;
- Design and maintain a web-based information system that manages, archives, and enables public and expert access to monitoring data;
- Analyze, interpret, and translate monitoring results into reports and other communication products for use by decision-makers, the public, and other appropriate audiences.

Scientific Research Projects Supporting OPC Priorities

One of the Ocean Protection Council's primary objectives is to provide high-quality research to support management of ocean and coastal resources. In September 2005, the council approved a grant of $1,000,000 to the state's two Sea Grant programs. A second grant cycle of scientific research projects was approved in February 2007. For each year of funding, OPC staff, in consolation with Sea Grant and others, will highlight priority research areas which will be included in the call for proposals and will used to select meritorious projects.

Reef Check California Monitoring Program

The Reef Check Foundation will expand the Reef Check California (RCCA) program's community-based network of certified volunteer SCUBA divers to collect and disseminate monitoring data on nearshore subtidal habitats and species statewide. Reef Check California has designed a data collection protocol in collaboration with the California Department of Fish and Game (CDFG) with the specific intent of collecting compatible data to support the CDFG's monitoring of California's growing system of Marine Protected Areas. The project will support RCCA's training, communication and volunteer dive monitoring activities in Southern California, leverage program funds already secured for diver training and data collection in Central and Northern California, and enable the design and implementation of RCCA's interactive web-based database for the dissemination of statewide data to all interested parties.

OCEAN AND COASTAL WATER QUALITY

Energy Grid Reliability Study

The State Water Resources Control Board's (SWRCB) is drafting a proposed statewide policy on the use of once-through cooling at coastal power plants. As part of their policy-support documents, the SWRCB staff is determining the possible impacts of the proposed policy to the environment as well as to future energy supply. The latter part of this assessment is due to the concern that the new policy may limit energy production from some coastal facilities or increase the likelihood that operators of certain coastal plants would shut down if they were unable or unwilling to comply. The proposed study will help determine grid reliability under different possible scenarios as a result of the SWRCB policy. OPC will work in close coordination with SWRCB, the California Energy Commission, the Public Utilities Commission, and the California Independent System Operator with a goal of providing SWRCB with the information it needs to make an informed regulatory decision regarding once-through cooling.

Low Impact Development Regulation Assessment

Low impact development **(**LID**)** is a more environmentally sensitive approach to developing land and managing stormwater runoff. LID can be used to address a wide range of storm water and run off issues, including; National Pollutant Discharge Elimination System (NPDES) Stormwater permits, Total Maximum Daily Load (TMDL) permits, Nonpoint Source Program goals, and other Water Quality Standards. Land-based runoff is a pressing issue as development continues to advance and natural areas are being converted to impervious surfaces, exacerbating stream bank erosion, altering the hydrologic regime, and transporting pollutants to receiving waters. This is particularly true in coastal areas where the rapid growth of cities and towns threatens coastal water resources. A number of approaches have been proposed to mitigate the impacts of new development; one of the most promising approaches is implementing LID. The project will assist the OPC in developing new LID policies by researching and summarizing current trends in the regulation of storm water discharges associated with new development and redevelopment. The project will also examine the current status of local LID regulations, highlighting examples and key features of land use plans, ordinances, and codes from leading LID communities nationwide.

PHYSICAL PROCESSES AND HABITAT STRUCTURE

California Shoreline Impacts Assessment

The California Shoreline Impacts Assessment project consists of two components that will collectively provide coastal managers the data needed to better predict and plan for coastal change in California during the next 10-100 years. The first project component includes basic research on sea level rise projections and on coastal processes, in cooperation with the California Energy Commission (CEC). The second component includes the creation of new data, reports, analyses, and decision tools that afford managers easy access to sea level rise impact data and scenario analyses relevant to long-term management decisions. Sponsored projects may include research into existing data gaps; shoreline management plans; interactive, easy-to-use decision support tools; and other products.

San Francisco Bay Hydrodynamic and Sediment Transport Model
The project will support workshops involving agencies and research institutions on the development of a modeling framework and a hydrodynamic and sediment model for San Francisco Bay. The project will result in the development of an open source, flexible, three-dimensional hydrodynamic and sediment transport model (a model of how water and sediments move through the system), which will be used to predict how restoration actions in San Francisco Bay will interact with the existing estuarine system, including changes in local tidal dynamics, salinity, and suspended sediment concentrations. This model will be used to help reduce costs of restoration project management by informing and improving future decisions; improve management of San Francisco Bay's bottom and shoreline; and improve our ability to understand and respond to global climate change including sea level rise. The modeling approach provides a necessary foundation on which other modeling efforts can be built.

OCEAN AND COASTAL ECOSYSTEMS

San Diego Sea Urchin Fishery
The San Diego sea urchin fishery is currently classified as data poor (i.e., lacking information on populations and stock assessments) resulting in poor management decisions. The project, by working with the San Diego Waterman's Association (SDWA), will use fishery dependant and independent data and models to help provide essential information on sea urchins. In addition, the SDWA will also engage in meetings and research with various stakeholders on the sea urchin fishery. The project will focus on high-quality collaborative research between fishery scientists and the fishing community. The project seeks to impart an understanding of the benefits of resource stewardship and information sharing by sea urchin fishermen. These efforts are required for developing responsible harvesting practices, collecting and distributing a high value product, and perpetuating local-level stewardship of the sea urchin fishery. The project will hopefully result in a replicable model for managing fisheries elsewhere in the state.

Transitioning San Luis Obispo County Harbors and Commercial Fisheries to a Sustainable Future
The proposed project will help local fishermen test new and innovative low impact fishing gear for the groundfish fishery. If successful, the gear will enable fishermen to once again target high value groundfish that have been severely restricted for the past several years due to concerns with the impacts of trawling on sea floor habitats and with bycatch (the incidental catch of unwanted species). This effort will serve to build consensus support for a federal and state gear-switching agreement, and thereby enable local fishermen to secure from the state and federal governments permits to allow trawlers to switch their catch history to more selective gear types and modified low-impact trawling gear. This in turn will enable The Nature Conservancy to lease the permits it has purchased from trawlers in the region back to local fishermen who agree to fish more selectively and with less impact on groundfish habitats. The end result will be more fishing boats back in the water operating under strict guidelines catching high value fish in a more sustainable manner with less impact on fishery populations and their habitats. In addition, a new marketing campaign would be launched in early 2007 to promote locally-caught fish to high-value markets with a focus on environmentally-friendly fishing methods. Such an effort would be consistent with the state's goal to transition the industry from high volume/low value

fisheries to higher value/low volume fisheries. This project was also supported by $100,000 of Coastal Conservancy funds.

California Fisheries Fund

The California Fisheries Fund concept was developed by Environmental Defense in response to the lack of capital available for financing improvements in fishery management, processing, and marketing that could enhance conservation, profitability, and viability of fishing communities. The Fund will be a model for investment in California's fisheries, generating information to develop more robust analyses of cash-flow under various kinds of management regimes, producing data to assess risk and potential returns, and rationalizing fishery management to stabilize the supply of seafood and improve conservation and economic performance. The Fund will offer loans to California fishing communities, groups, associations, and businesses to assist them with a transition to more environmentally and economically sustainable fishing practices and governance, where conventional investment capital or loans from traditional financial institutions are not available. Examples of potential projects that could be supported by the Fund include those that: promote the transition to gear types that have less impact on bottom habitats and reduced bycatch rates; reduce fishing capacity in overcapitalized fisheries; support planning and implementation for management reforms for a particular fishery; improve marketing for sustainable seafood products or create sustainable seafood products that qualify for certification; or support fisheries-supporting infrastructure.

San Francisco Fisherman's Wharf Sustainable Seafood Market

This project will assess the feasibility of creating a marketplace for the public and businesses to purchase seafood directly from local independent fisherman that subscribe to sustainable fishing standards at Fishermen's wharf in San Francisco. The creation of new direct markets may allow local crab fisherman, to increase the economic potential of their fishery by providing the best local seafood at competitive prices. The proposed fish market will reverse the low value/high volume business model, which can lead to overfishing as well as promote destructive fishing practices. In addition, the market will have an educational component by providing consumers information about sustainable fishing practices and may establish a trademark or protected certification program for sustainable local seafood product. This project was also supported by $32,734 of Coastal Conservancy funds.

Moss Landing Sustainable Fishing Feasibility Study

Moss landing is the largest commercial fishing port in central California. Over the past 20 years, the commercial fishing industry in California and at Moss Landing and has declined in terms of fishery pounds landed and revenue generated. Moss Landing Marine Laboratories (MLML) plans to renovate dock space in Moss Landing Harbor with the intention of locating their marine operations facility. MLML would like to develop the property into a 'multiuse marine operations' facility, servicing research and education co-located with a sustainable fishing offloading facility. The goal is for MLML to partner with the local fishing industry to improve local infrastructure, which in turn could support a sustainable fishery, save local jobs, and promote a partnership that would benefit research, education, and fishing interests. This project was also supported by $25,000 of Coastal Conservancy funds.

Santa Monica Bay Gap Analysis
Santa Monica Bay Restoration Commission (SMBRC) was granted funds to undertake the Santa Monica Bay Research and Monitoring Gap Analysis (Gap Analysis) project. The project will catalogue gaps in research, mapping, and monitoring of the marine resources in Santa Monica Bay, allowing SMBRC and others in the Southern California Bight to prioritize future research projects to address scientific needs, and create a sound knowledge base for future management actions such as the designation of marine protected areas (MPAs). This pilot project will provide a replicable methodology and initial regional coordination within the Southern California Bight for prioritizing and conducting research and monitoring to eliminate identified gaps in research and monitoring data for this economically and ecologically important region. In addition, SMBRC will compile existing data for Santa Monica Bay and populate a GIS database, formatted according to DFG standards. This database can be augmented with data from future monitoring efforts.

EDUCATION AND OUTREACH

Sea Grant State Policy Fellowship
California Sea Grant's State Fellows Program provides a unique educational opportunity for graduate students who are interested both in marine resources and in the policy decisions affecting those resources. The program matches highly motivated and qualified graduate students with "hosts" in California state agencies for a 9-month paid fellowship.

UC Marine Council Graduate Student Support
The goal of the University of California Marine Council (UCMC) graduate fellowship program is to build bridges between scientific research and policy development. This is accomplished by linking natural and social scientists with the UC system with state resource managers and policy makers to ensure that research informs long-term policies that lead to sustainable coastal and ocean resources. The 2007 UCMC fellowship program focused on two research areas: (1) marine protected areas and ecosystem-based management, and (2) global warming impacts on California's coastal zone. Expanding scientific knowledge and understanding in these areas can significantly enhance the state's ability to effectively manage its coastal and ocean resources. The funds cover the costs of two one-year fellowships awarded as part of that program.

OPC ADMINISTRATION

To promote public access to government actions, AGP Video, Inc. provides audiovisual recording for the Ocean Protection Council meetings and several Fish and Game Commission meetings. The remaining administration costs included items such as meeting space fees, conference registration fees for staff, and travel expenses.

OPC PROJECT SUMMARIES
2007-2008

GOVERNANCE

RESEARCH AND MONITORING

OCEAN AND COASTAL WATER QUALITY

Plastic Waste Substance Flow Accounts Study

The state is developing strategies to reduce plastic-based toxins reaching aquatic environments. In 2007, the Ocean Protection Council adopted a Resolution on Reducing and Preventing Marine Debris which calls for seeking innovative methods to reduce plastic waste through investigating non-toxic biodegradable packaging alternatives as well as preparing a plan for a phased ban on toxic plastic packaging. Researchers will develop substance flow accounts containing an inventory and measure of chemical substances contained in plastic materials found in aquatic environments and estimate annual mass flows and outflows in California based on product end-of-life fate. This project will provide a better understanding of these toxic substances; identify safer substitutes; provide an analysis of the methodology used; and recommend next steps.

Plastics Toxicological Studies

The Ocean Protection Council passed a resolution on reducing and preventing marine debris in early 2007 which includes preparing a plan to ban for the phased ban of the most toxic types of plastic packaging, to be achieved by not later than 2015. This study will review scientific literature and develop toxicological profiles on several chemicals of concern in order to provide information on the known exposure and health effects of these contaminants on humans, experimental animals, and marine organisms. Researcher will conduct a review of scientific literature and develop toxicological profile reports on the effects of chemicals bisphenol-A, nonylphenol and di-2-ethyl hexyl phthalate (DEHP) used in plastics on human, experimental animals and marine organisms health.

PHYSICAL PROCESSES AND HABITAT STRUCTURE

OCEAN AND COASTAL ECOSYSTEMS

EDUCATION AND OUTREACH

OPC ADMINISTRATION

Fiscal Year 06-07

PROJECT NAME	Totals	Tidelands	SCC Prop 40 and Prop 50	General Fund (workplan)	ELPF	Grantee/Contractor	Date Approved
Beginning FY 06/07		**$6,190,000**	**$2,235,000**	**$8,000,000**	**$1,000,000**		
Total Spent	**$13,490,648**	**$6,025,808**	**$915,734**	**$5,551,855**	**$997,251**		
Total Remaining	**$3,934,352**	**$164,192**	**$1,319,266**	**$2,448,145**	**$2,749**		
Governance	**$467,738**						
Options for Permanent Funding for Ocean and Coastal Protection					$49,000	Redefining Progress	23-Sep-05
CalOST Science Advisor Position					$200,000	CalOST	7-Feb-07
State Agency Budget Assessment					$90,000	MBARI	Delegated Feb-07
Non-market Ecological Valuation of Coastal Marine Resources					$78,738	NCEAS	Delegated March-07
Ocean Energy Impacts Study		$50,000				TBD	14-Jun-07
Research and Monitoring	**$8,512,163**						
Coastal Ocean Currents Monitoring Program		$41,808				Department of Parks and Recreation, Orange Coast District	Delegated Aug-06
MPA Monitoring Enterprise		$2,000,000				CalOST	28-Nov-06
MLPA Central Coast Baseline Monitoring				$2,275,000		UC Sea Grant	28-Nov-06
Benthic Habitat Mapping - North Central Coast				$1,510,000		Monterey Bay National Marine Sanctuary Foundation	28-Nov-06
Scientific Research Projects Supporting OPC Priorities		$1,000,000				UC and USC Sea Grants	7-Feb-07
Reef Check California Monitoring Program					$243,500	Reef Check	7-Feb-07
Deep-water ROV Surveys in the Channel Islands				$660,000		MARE	Delegated Feb-07
North Central Coast Socioeconomic Data Collection				$200,000		Ecotrust	Delegated May-07
Channel Islands SCUBA survey				$371,187		UCSB	Delegated May-07
Channel Islands SCUBA survey				$210,668		National Park Service	Delegated May-07

Fiscal Year 06-07

Ocean and Coastal Water Quality	**$160,000**						
Energy Grid Reliability Study		$110,000				Jones and Stokes/Global Energy Decisions	7-Feb-07
Low Impact Development Regulation Assessment					$50,000	Tetra Tech Inc.	Delegated March-07
Physical Processes and Habitat Structure	**$1,358,000**						
California Shoreline Impacts Assessment		$500,000				UCSD and others	14-Jun-07
San Francisco Bay Hydrodynamic and Sediment Transport Model			$858,000			Stanford University and UC Berkeley	14-Jun-07
Ocean and Coastal Ecosystems	**$2,794,468**						
San Diego Sea Urchin Fishery		$114,000				San Diego Waterman's Association	28-Nov-06
Transitioning San Luis Obispo County Harbors and Commercial Fisheries to a Sustainable Future					$30,000	City of Morro Bay	Delegated Nov-06
California Fisheries Fund		$2,000,000				Environmental Defense	7-Feb-07
San Francisco Fisherman's Wharf Sustainable Seafood Market			$32,734		$32,734	Ecotrust	SCC Meeting Feb-07
Moss Landing Sustainable Fishing Feasibility Study			$25,000		$25,000	Moss Landing Marine Labs	SCC Meeting Feb-07
DFG-SCUBA equipment and vessel operations				$325,000		Department of Fish and Game	Delegated Feb-07
Santa Monica Bay Gap Analysis		$210,000				Santa Monica Bay Restoration Commission	14-Jun-07
Education and Outreach	**$72,522**						
Sea Grant State Policy Fellowship					$12,522	UC Sea Grant	Delegated March-07
UC Marine Council Graduate Student Support					$60,000	UC Marine Council	SCC Meeting May-07
OPC Administration	**$125,757**						
Videoconferencing 2007-2009					$49,900	AGP Video	Delegated March-07
Various Expenses					$75,857		

Fiscal Year 07-08

PROJECT NAME	Totals	Prop 84	Tidelands	SCC Prop 40 and Prop 50	General Fund (workplan)	ELPF	Grantee/Contractor	Date Approved
Beginning FY 07/08		**$27,000,000**	**$164,192**	**$1,319,266**	**$2,448,145**	**$800,000**		
Total Spent	**$1,838,776**	**$4,000,000**	**-$3,733,134**	**$0**	**$1,541,910**	**$30,000**		
Total Remaining	**$29,892,827**	**$23,000,000**	**$3,897,326**	**$1,319,266**	**$906,235**	**$770,000**		
Governance	**$0**							
Research and Monitoring	**$1,536,910**							
MPA Monitoring Enterprise		$2,000,000	-$2,000,000					
Fish Trapping Surveys					$407,855		UCSB	Delegated Sept 07
Icthyoplankton Surveys					$500,000		UCSD -Scripps	Delegated Sept 07
Recreational Fishing Field Data Collection					$629,055		Pacific States Marine Fisheries Commission	Delegated Sept 07
Commercial Fishery Logbook Data Management					$5,000		PC Database Solutions	Delegated Sept 07
Ocean and Coastal Water Quality	**$266,866**							
Plastic Waste Substance Flow Accounts Study			$90,000				UCSB	Delegated Sept 07
Plastic Toxins Literature Reviews			$176,866				OEHHA	Delegated Sept 07
Ocean and Coastal Ecosystems	**$0**							
California Fisheries Fund		$2,000,000	-$2,000,000					
Education and Outreach	**$0**							
OPC Administration	**$30,000**							
						$30,000		